

% SCSI Bus Decoder Pal

paltype pal1618
palname scsi U108 520-1052
palid 2.4 84/03/02

PALBEGIN

% Inputs

1 INPUT ENPAR
2 INPUT ENDMA
3 INPUT ENWORDMODE
4 INPUT REQ
5 INPUT MSG
6 INPUT CD
7 INPUT IO
8 INPUT PAR
9 INPUT BUSERR
10 GND
11 INPUT REGACC
12 NOTUSED
13 INPUT SECONDBYTE
18 INPUT EVEN

% outputs

19 OUTPUT NEWREQ
17 OUTPUT ACKOUT
16 OUTPUT INTOUT
15 OUTPUT XREQ
14 OUTPUT PARERR

20 VCC

EQUATIONS

% DeMorganized version of REQ / ACKOUT

ASSERT NEWREQ

ENABLE ALWAYS

OR / REQ

OR REGACC

OR ENWORDMODE / CD IO / SECONDBYTE

OR ENWORDMODE / CD / IO SECONDBYTE

OR ENDMA / CD

% off when no request

% or after req is acked

% or on auto cycles

% or on dma cycles

ASSERT ACKOUT

ENABLE ALWAYS

OR / REQ

OR / REGACC / ENWORDMODE

OR / REGACC CD

OR / REGACC / IO / SECONDBYTE

OR / REGACC IO SECONDBYTE

% implicit ack when the byte packing can handle the request

% first byte is automatic on input, second on output

ASSERT INTOUT

ENABLE ALWAYS

OR / BUSERR / REQ

OR / BUSERR REGACC

OR / BUSERR / MSG CD / IO % status

OR / BUSERR / MSG / CD ENDMA % data

% status or message is always an interrupt

% data only interrupts if dma is disabled

ASSERT XREQ

ENABLE ALWAYS

OR / REQ % only at start of a request

OR / ENDMA % and only if enabled

OR CD % and only for data

OR ENWORDMODE / IO SECONDBYTE % and not on automatic bytes

OR ENWORDMODE IO / SECONDBYTE

% when byte packing is off, do dma every byte

% otherwise, dma after we've collected two bytes (input).

% or on 0th, 2nd, 4th, etc. (output)

ASSERT PARERR

ENABLE ALWAYS

OR / ENPAR

OR / PARERR / REQ

OR / PARERR / IO

OR / PARERR / EVEN / PAR

OR / PARERR EVEN PAR

% parity error latches until cleared by clearing parity enable

TIMING: NO-CLOCK

```

ENDMA      -----
ENWORDMODE -----
MSG        -----
CD         -----
IO         -----
REQ        -----
BUSERR     -----
REGACC     -----
SECONDBYTE -----
NEWREQ     -----
ACKOUT     -----
INTOUT     -----
XREQ       -----
ENPAR      -----
PAR        -----
EVEN       -----
PARERR     -----

```

(test parity)

IO -----

ENPAR	-----
REQ	- - - - -
PAR	-----
EVEN	- - - - -
PARERR	-----
NEWREQ	????????????
ACKOUT	????????????
INTOUT	????????????
XREQ	????????????
ENDMA	-----
ENWORDMODE	-----
MSG	-----
CD	-----
BUSERR	-----
REGACC	-----
SECONDBYTE	-----
PALEND	